Power Generation

Diesel Generator Set

B3.9 Series

70-82.5 kVA, 56-66 kWe Prime

Specification Sheet

Latest Technology And Unmatched Performance

- The Cummins® B3.9 series rugged engine and world class Stamford alternator powered diesel generator set
- Advanced in-cylinder technology to meet latest emission norms without any after-treatment device.
- Smart aesthetic and superior finish
- Compact in size with optimum power to weight ratio

Environment Friendly Power

- Class defining technology engine is designed to meet stringent exhaust emission tests as per revised MoEF norms, thus offering environment friendly power.
- The Cummins® diesel generator sets are available with the lowest noise levels in its range

Lowest Operating Cost And Comprehensive Warranty

- Highly reliable and durable product
- All elements are designed to work together to maximize efficiency even at part loads, offering the advantage of lowest operating costs.
- 500 Hours/ 1 year service interval
- Industry acknowledged best-in-class comprehensive warranty on the entire package including rubber components

Single Source Power Assurance

- All the major components – the engine, alternator, control system and canopy are designed, manufactured and tested by Cummins India.
- Best and largest customer support network in India, capable of providing round-the-clock service and spares support
- All these things put together, Cummins® offers you SINGLE SOURCE POWER ASSURANCE

Engine

- Cummins B3.9 series, 4 cylinder, In-line 4 stroke, radiator cooled engine
- Well designed air handling system with
  - — Dry type, Replaceable paper element air cleaner with restriction indicator
  - — Air to air aftercooling
  - — Optimised turbocharger for increased altitude capabilities
- Optimised fuel consumption with
  - — Inline fuel pump with mechanical governing
  - — Spin on fuel filter
- Standard integral set-mounted radiator system, designed and tested for 50°C ambient temperatures
- Full flow spin on lube oil filter
- First fill of lube oil and coolant
- Electrical starter motor with soft start engagement feature
- Battery charging alternator
- 1 x 12 V DC battery

Alternator

- Stamford UC22 alternator frames from Cummins Generator Technologies
- Brushless type, Screen protected, Revolving field, Self excited alternator conforming to IS/IEC 60034-1
- 3 Phase reconnectable winding with 12 terminals brought out for connection
- Better motor starting capability
- Best in class efficiency
- Compact design with sealed bearings for longer life and lesser maintenance
- Impregnation on all wound components for better mechanical strength

Control Panel

Control panel is manufactured with 14/16 gauge CRCA sheet and is powder coated for weather-proof and long lasting finish. The control panel consists of the following parts:

- PS0500 Controller
- Aluminium bus bars with suitable capacity with incoming/ outgoing terminals
- Indicating lamps for 'Load ON' and 'Set Running'
- Instrument fuses duly wired and ferruled
- MCCB of suitable rating with overload and short circuit protections

PS0500 Features

Cummins PowerStart™ PS0500 control is a microprocessor based generator set monitoring and control system. This control includes an intuitive operator interface that allows for complete generator set control as well as system metering, fault annunciation, configuration and diagnostics.

- Intuitive operator interface which includes LED backlit LCD display with tactile feel soft-switches and generator set status LED lamps
- Remote Start-Stop
- Engine Metering: Oil pressure, Engine temperature, Starting battery voltage, Engine running hours
- AC Alternator Metering: L-L Voltage and L-N Voltage, Current (phase and total), kVA (phase and total) and Frequency.
- Engine Protection: Low lube oil pressure, High/Low coolant temperature, Battery Over/Under/Weak Volts, Fail to Crank/ Start, Sensor failure, Cranking lockout, Low fuel level.
- AC Alternator Protection: Over/Under Voltage, Over/Under Frequency, Loss of AC Sensing.
- Data Logging: Engine hours, Control hours and upto 5 recent fault codes
- Configurable glow plug control
- 12 Volt DC operation
- Sleep mode
- Modbus interface (RS485 RTU)
- InPower compatible (PC based service tool)
- Certifications - meets the requirement of relevant ISO, EN, Mil Std. and CE standards

Silencer

- Hospital grade Silencer suitably optimised to meet stringent noise emission standards laid down by MoEF / CPCB

Mounting Arrangement

- Engine and alternator are mounted on a common MS fabricated base frame with AVM pads.
- Base frame with integral fuel tank is provided with drain plug, air vent, inlet and outlet connection, level indicator and provision for cleaning

Optional

- **Engine:** Coolant heater, Oil drain pump, Heavy duty air cleaner, Electronic Governing
- **Alternator:** PMG
- **Control Panel:** PC1.1, Microprocessor / relay based AMF control panel
- **Others:** Trolley mounted mobile sets

Acoustic Enclosure

- Specially designed to meet stringent MoEF/ CPCB norms of 75 dBA @ 1mtr at 75% load under free field conditions
- The acoustic enclosure is made CRCA sheets in munsel green shade and a structural/ sheet metal base frame painted in black.
- High quality noise absorbant and fire-retardant grade acoustic Insulation material (P.U. Foam) complying to IS 8183
- Two point lifting for easy handling at customer site
- Designed to have optimum serviceability
- Air inlet louvers specially designed to operate at rated load
- Made on special purpose CNC machines for consistency in quality and workmanship
- 11 tank pretreatment process and UV resistant powder coating of all parts to withstand extreme environment
- Use of special hardware for longer life
- Flush styling - no projections
- Fluid drains for lube oil and fuel
- Fuel filling arrangement inside the enclosure

Technical Data

Generator Set Specification		
Model	C70D5P	C82.5D5P
Duty	Prime	Prime
Power Rating kVA / kWe	70/56	82.5/66
No. of Phases	3	3
Output Voltage and Frequency (V and Hz)	415 V, 50 Hz	415 V, 50 Hz
Power Factor	0.8 (lagging)	0.8 (lagging)
Current (A)	98	115
RPM	1500	1500
Engine Specification		
Make	Cummins	Cummins
Model	4BTAA3.9-G3	4BTAA3.9-G4
MoEF Certified Power (hp)	99	110
Required Power for Rated kVA (hp)	91	105
Cooling	Liquid Cooled (EG Compleat 50:50)	Liquid Cooled (EG Compleat 50:50)
Aspiration	Turbocharged, Charge Air Cooled	Turbocharged, Charge Air Cooled
No. of cylinders	4, In-line	4, In-line
Bore (mm) x Stroke (mm)	102 x 120	102 x 120
Compression ratio	18:1	18:1
Displacement (litre)	3.9	3.9
Fuel	High Speed Diesel	High Speed Diesel
Fuel consumption @75% load with radiator and fan* (litre/hr)	13.64	15.69
Fuel consumption @100% load with radiator and fan* (litre/hr)	18.34	20.88
Performance class of generator set	ISO 8528-5 G2	ISO 8528-5 G2
Starting system	12 V DC Electrical	12 V DC Electrical
Lube oil specification	CI4+ 15W40	CI4+ 15W40
Lube oil sump capacity, High-Low level (litre)	14 - 9	14 - 9
Total lubrication system capacity (litre)	16	16
Lube oil consumption @ full load** (litre/hr)	0.03	0.03
Total coolant capacity (litre)	19	19
Exhaust pipe size (inch)	3.5	3.5
Total wet weight (Engine+Radiator)## (kg)	450	450
Length x Width x Height (Engine) (mm)	780 x 745 x 890	780 x 745 x 890
Mean Piston speed (m/s)	6	6
Combustion air intake @100% load (±5%) (cfm)	212	259
Exhaust Temperature (°C)	500	450
Alternator Specification		
Make	Stamford (CGT)	Stamford (CGT)
Alternator Frame	UCI224F	UCI224G
Enclosure	IP 23	IP 23
Voltage regulation (Max.)	±1%	±1%
Class of Insulation	H Class	H Class
Winding Pitch	2/3	2/3
Stator Winding	Double layer lap	Double layer lap
Rotor	Dynamically Balanced	Dynamically Balanced
Waveform distortion/ Total Harmonic Distortion	No load < 1.5 %, Non distorting balanced linear load < 5 %	No load < 1.5 %, Non distorting balanced linear load < 5 %
Maximum Unbalanced Load across phases#	less than or equal to 25%	less than or equal to 25%
Telephonic Harmonic factor	< 2%	< 2%

** Fuel consumption data is based on diesel having specific gravity of 0.85 and conforming to IS:1460. Fuel consumption tolerance is +5%*

***Oil consumption data is based on oil having specific gravity of 0.89 and meeting CI4+ API categories*

 # With the condition that none of the phases exceeds its rated current

Rating Definitions

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528.

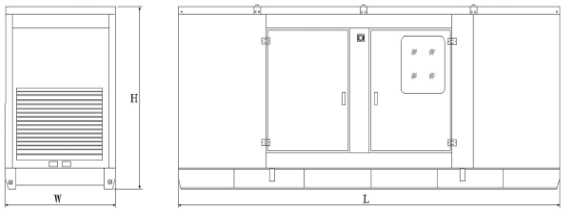
Conformance Standards

- IS/IEC 60034-1
- IS 1460
- ISO 8528
- ISO 3046
- ISO 9001
- IS 13018

Typical Enclosed Genset Dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Wet Weight## (kg)	Standard Fuel tank Capacity (litre)
C70D5P	70	3850	1150	1700	1915	145
C82.5D5P	82.5	3850	1150	1700	1915	145

Approximate Weight



Authorised Representative

Cummins Power Generation Offices

Bengaluru: Tel.: (080) 2325 9161 / 63, 2325 9165 / 67
Fax: (080) 2325 9164
Chandigarh: Tel.: (0172) 224 0371-73
Fax: (0172) 224 0372
Chennai: Tel.: (044) 2446 8110 / 2446 8113
Fax: (044) 2491 1120
Gurgaon: Tel.: (0124) 391 0900-01
Fax : (0124) 391 0916
Hyderabad: Tel.: (040) 2340 9970 / 2340 9980
Fax. (040) 2340 9990
Jaipur: Tel.: (0141) 236 4944
Fax: (0141) 403 8794
Kolkata: Tel.: (033) 2287 8065 / 2287 2481
Fax: (033) 2290 3839
Lucknow: Tel.: (0522) 230 5049 / 230 5059
Fax: (0522) 230 5035
Mohali: Tel.: (0172) 224 0371 / 72 / 73
Fax: (0172) 224 0371 / 72 / 73
Vadodara: Tel.: (0265) 233 0627 / 3053627
Fax: (0265) 234 0623

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Power Generation

Cummins India Limited
Power Generation Business Unit
Cummins India Office Campus
Tower-A, 6th Floor, S. No. 21,
Balewadi, Pune – 411 045 (India)
Email: cpgindia@cummins.com
www.cumminsindia.com